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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,374	03/12/2004	Minoru Suzuki	016907-1612	5644
22428 7590 12/11/2007 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER RADKIEWICZ, JARED	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 12/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/798,374	Applicant(s) SUZUKI, MINORU	
	Examiner Jared W. Radkiewicz	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is fully responsive to the remarks, claim amendments, and specification amendments filed on 8/20/2007.

Specification

2. The amended title of the invention is sufficiently descriptive of the present invention and the objection is withdrawn.

Response to Arguments

3. Applicant's arguments filed 8/20/2007 have been fully considered but they are not persuasive. Applicant asserts that the Goris reference (US 6,153,743) does not teach "the different data lengths being obtained by subtracting a shortest data length from a data length of each block stored in the bit-length storage" (Remarks Page 10). The examiner respectfully disagrees. Goris teaches a method and system that stores variable length image data in constant data length segments ("Then, the segment size for data structure 400 may be set equal to the largest of compressed blocks 0-n (i.e., the block having the worst case compression ratio). In this manner, the amount of system memory wasted by unused portions such as portions 404, 406 and 408 will be minimized", Goris Column 7 Lines 44-49). the applicant asserts Goris column 7 lines 44-49 merely teaches a variable length compression section, which is false. The Goris

passage (column 7 lines 44-49) does not discuss any variable length compression. The Goris passage (column 7 lines 44-49) does teach a method of storing variable length data into constant data length segments, in the same manner as claimed in claim 1. Applicant also argues that there is insufficient motivation to combine the teachings of Mishra (US 6,298,404 B1) with the Goris primary reference. The examiner respectfully disagrees. The Mishra reference is in the related field of digital image processing (Mishra Figure 1). Both Goris and Mishra teach various methods of more efficient and expedient image processing, as supplied in the full motivational statement made for combining Mishra with Goris:

because Mishra's apparatus processes images in "blocks of 32 bytes ... results[ing] in a very efficient transfer of images" (Mishra Column 5 Lines 22-23). Furthermore, Mishra's apparatus has capabilities to apply "various image manipulation functions" (Mishra Column 12 Line 62) to images. By applying Goris' "efficient technique for storing and retrieving" (Goris Column 3 Line 6) image data to Mishra's apparatus the system has become even more efficient which would allow Mishra to maintain high page per minute processing capabilities.

Applicant does not argue the merits of the remaining claim and asserts that they are allowable as being dependant from claim 1. As claim 1 remains rejected under the same grounds, claims 2-5 also stand rejected under the same grounds as the previous office action.

New claims 6-9 have been added to the application. As claims 6-9 are of substantially similar scope to claims 1-4, they are rejected under the same grounds as claims 1-4.

Claim Objections

4. **Claim 3** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The applicant's argument for withdrawing the previously advanced 37 CFR 1.75(c) is understood as follows: Applicant submits that the product of claim 1 is a constant block length of L-S while claim 3 produces a variable block length by removing any added bits. The examiner agrees that these are distinct operations and that if claim 3 clearly claimed what is argued it would further limit claim 1. Claim 3 recites (emphasis added) "...the added bits from each variable-length code of the constant data length, *based on* the data length of the corresponding bits stored in the bit-length storage...". The bits removed in claim 1 are also 'based on' the data length of the corresponding bits stored in the bit-length storage. The term 'based on' is so general that any operation including the data from the bit-length storage would be encompassed by it. It is suggested to clarify the matter by specifying exactly what modification 'based on' the data length of the corresponding bits stored in the bit-length storage is taking place in claim 3.

5. The objection to **claim 1** regarding the ambiguity of the term "bit" is overcome by the amendment and withdrawn.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-4 and 6-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Goris et al. (US 6,157,743) in combination with Mishra (US 6,298,404 B1).

8. Regarding **claim 1**, Goris teaches an image processing apparatus comprising:

a variable-length compression section that performs variable-length compression on image data of each block included in one page ("JPEG, run-length encoding, Huffman encoding", Goris Column 2 Lines 15-16);

an adjusting section which adjusts each block to a constant data length by adding a bit* to or truncating part of a variable-length code of each block obtained by compression by the variable-length compression section ("Then, the segment size for data structure 400 may be set equal to the largest of

compressed blocks 0-n (i.e., the block having the worst case compression ratio).

In this manner, the amount of system memory wasted by unused portions such as portions 404, 406 and 408 will be minimized", Goris Column 7 Lines 44-49);

a bit*-length storage which stores a data length of the bit* added by the adjusting section to the variable-length code of each block ("Preferably, header 502 will contain a block length field 504, the purpose of which is to indicate the length of the compressed block contained in that segment", Goris Column 7 Lines 62-64);

a variable-length-code storage which stores variable-length codes obtained by erasing the added bits from the variable-length codes of the all blocks ("a first technique for storing variable-length blocks of compressed texture data in a memory system. Data structure 200 includes a number of compressed texture data blocks 0-n. Compressed blocks 0-n do not have a common block length. Nevertheless, they are stored contiguously in system memory 104", Goris Column 6 Lines 50-55); and

a block-data-length conversion section which adds respective bits* of different data lengths to variable-length codes of blocks read from the variable-length-code storage, converting data lengths of the blocks into a shorter constant data length than the constant data length, if the determination section determines that the respective bits are added to the all blocks, the different data lengths being obtained by subtracting a shortest data length from a data length of each block stored in the bit*-length storage ("Then, the segment size for data structure 400 may be set equal to the largest of compressed blocks 0-n (i.e., the block

having the worst case compression ratio). In this manner, the amount of system memory wasted by unused portions such as portions 404, 406 and 408 will be minimized", Goris Column 7 Lines 44-49).

Goris does not teach a determination section which determines whether the adjusting section has added respective bits to all blocks included in the one page.

Mishra teaches the concept of operating on small blocks of a full-page image and a determination section that determines when all blocks have been processed ("step 338 determines if all blocks in the buffer (the buffer containing the M main-scan lines) have been rotated and written to the appropriate place in memory", Mishra Column 15 Lines 62-64; although Mishra uses the block processing method with respect to a rotation algorithm, the principle of sequentially processing individual blocks of an image and determining when the entire image has been processed is being taught).

It would have been obvious at the time of invention to one of ordinary skill in the art to use the compression storage scheme of Goris in the apparatus of Mishra because Mishra's apparatus processes images in "blocks of 32 bytes ... results[ing] in a very efficient transfer of images" (Mishra Column 5 Lines 22-23). Furthermore, Mishra's apparatus has capabilities to apply "various image manipulation functions" (Mishra Column 12 Line 62) to images. By applying Goris' "efficient technique for storing and retrieving" (Goris Column 3 Line 6) image data to Mishra's apparatus the system has become even more efficient

which would allow Mishra to maintain high page per minute processing capabilities.

9. Regarding **claim 6**, the Goris and Mishra combination as applied to claim 1 also teaches a method for performing claim 1 ("the invention relates to methods for retrieving compressed texture data from a memory system", Goris Column 1 Line 13).

10. Regarding **claims 2 and 7**, Goris and Mishra teach the image processing apparatus according to claim 1, wherein if the determination section determines that the respective bits are not added to the all blocks, the block-data-length conversion section adds respective bits of data lengths, stored in the bit-length storage, to the variable-length codes of the blocks read from the variable-length-code storage, converting the data length of each block into the constant data length ("Data structure 500 is the same in all respects to data structure 400, except that a header 502 has been added to the beginning of each segment", Goris Column 7 Lines 59-62; "Then, the segment size for data structure 400 may be set equal to the largest of compressed blocks 0-n (i.e., the block having the worst case compression ratio). In this manner, the amount of system memory wasted by unused portions such as portions 404, 406 and 408 will be minimized", Goris Column 7 Lines 44-49).

11. Regarding **claims 3 and 8**, Goris and Mishra teach the image processing apparatus according to claim 1, wherein the block-data-length conversion section erases the added bit from each variable-length code of the constant data length, based on the data length of each bit stored in the bit-length storage and stores the variable-length code in the variable-length-code storage ("a first technique for storing variable-length blocks of compressed texture data in a memory system. Data structure 200 includes a number of compressed texture data blocks 0-n. Compressed blocks 0-n do not have a common block length. Nevertheless, they are stored contiguously in system memory 104", Goris Column 6 Lines 50-63).

12. Regarding **claims 4 and 9**, the Goris and Mishra combination as applied to claim 1 teaches the image processing apparatus according to claim 1, further comprising:

an erasure section which erases, before printing, the bit added to the variable-length code of each block supplied from the page memory, based on a determination result of the determination section and the data length of each bit stored in the bit-length storage (Figure 8A describes the compressed image retrieval mechanism including determining data length stored and removing null data).

The Goris and Mishra combination as applied to claim 1 does not teach the image processing apparatus according to claim 1, further comprising:

a page memory which temporarily stores the variable-length code of each block, the variable-length code having the constant data length; and

Mishra teaches a page memory which temporarily stores the variable-length code of each block, the variable-length code having the constant data length ("Mass Storage" 20 Mishra Figure 1);

It would have been obvious at the time of invention to one of ordinary skill in the art to provide the apparatus of Goris and Mishra with the page memory of Mishra as the storage unit of Goris.

13. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Goris et al. (US 6,157,743) and Mishra (US 6,298,404 B1) in further view of Silverbrook (US 5,329,616).

14. Regarding **claim 5**, Goris and Mishra teach claim 1.

Goris and Mishra do not teach the image processing apparatus according to claim 1, wherein the variable-length compression section performs joint photographic experts group processing.

Silverbrook teaches JPEG as a variable length compression scheme. ("JPEG ADCT compressed data because that data is of variable length", Silverbrook Column 6 Lines 37-39).

It would have been obvious at the time of invention to one of ordinary skill in the art to use JPEG compression as the variable length compression in Goris and Mishra because it is a standard well known to those in the art.

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared W. Radkiewicz whose telephone number is (571) 270-1577. The examiner can normally be reached on 8:00 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JWR



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PRIMARY EXAMINER